ing. Since the transmit and receive portions are separated, the same radio carrier frequency can be used for transmitter and receiver. However, if different frequencies are used, transmitting and receiving can be performed at the same time (for example, at the portion T_{01}).

Since the data is transmitted after being time-compressed, data whose transmission rate is from 1/N to (N−1)/N of the fundamental transmission rate can be transmitted by using a single spreading code and by setting N equal to or greater than 3. One portion is used for receiving the broadcasting data and the remaining (N−1) portions can be used for communication.

FIGS. **9**A–**9**F illustrate the relationships between frames and packets when the compression ratio N=8. FIG. **9**B shows the case where data whose transmission rate is ⅛ of the fundamental transmission rate is inputted to the channel input terminal $\mathbf{111}_1$ of the transmitter of FIG. **5**. The data corresponding to a frame is time-compressed to a packet P_1 whose length is T/8, and is transmitted. FIG. **9**C shows the case where data whose transmission rate is ½ of the fundamental transmission rate is inputted to the channel input terminal $\mathbf{111}_2$ of the transmitter. The data corresponding to a frame is time-compressed to a packet P_2 whose length is T/2, and is transmitted. FIG. **9**D shows the case where data whose transmission rate is ⅛ of the fundamental transmission rate is inputted to the channel input terminal $\mathbf{111}_3$ of the transmitter. The data corresponding to a frame is time-compressed to a packet P_3 whose length is T/8, and is transmitted. FIG. **9**E shows the case where data whose transmission rate is ¼ of the fundamental transmission rate is inputted to the channel input terminal $\mathbf{111}_4$ of the transmitter. The data corresponding to a frame is time-compressed to a packet P_4 whose length is T/4, and is transmitted.

In this case, although the spreading codes C_1–C_n inputted to the spreading modulators $\mathbf{114}_1$–$\mathbf{114}_n$ differ from each other, the same spreading code may be consistently used for data inputted to the same channel input terminal, or other spreading codes may be used. For example, the spreading code C_2 may be consistently used for the packet P_2 of FIG. **9**C, or the spreading code may be changed for each one of the T/N long portions. In addition, the packet P_2 may be divided into two packets P_{21} and P_{22} as shown in FIG. **9**F. By thus dividing the transmission data in a frame, an advantage of smoothing the interference is obtained.

The division of the transmission data in a frame can be carried out by the following procedure.

(1) Store the input data into a memory in the TCH frame thin-out circuit.

(2) Read data in the memory at the fundamental transmission rate in the designated time duration (=T/N).

The packets shown in FIGS. **9**B–**9**F are received by a mobile station, and restored to the original data by the rate conversion. Thus, even if the transmission rate of the input data is varied, the data can be transmitted as long as its transmission rate is equal to or less than the fundamental transmission rate. In addition, a mobile station can receive the common control data addressed to itself or to other mobile stations in a vacant portion in each frame by switching the spreading code for the despreading, at timings as indicated by broken lines in FIGS. **9**C–**9**F, for example.

Although data whose transmission rate is lower than the fundamental transmission rate is transmitted through a single channel in this embodiment, the number of channels is not restricted to one. For example, although the packet P_2 in FIG. **9**C is transmitted using four T/N long portions in the frame of a single channel, it can be transmitted by distributing the packet to four channels. In this case, each channel transmits the data using one portion in a frame.

The present invention has been described in detail with respect to various embodiments, and it will now be apparent from the foregoing to those skilled in the art that changes and modifications may be made without departing from the invention in its broader aspects, and it is the intention, therefore, in the appended claims to cover all such changes and modifications as fall within the true spirit of the invention.

What is claimed is:

1. A CDMA (Code Division Multiple Access) communications method for transmitting transmission data through one or more channels between base stations and mobile stations, said method comprising the steps of:

generating a frame including at least a part of said transmission data and a vacant portion when a transmission rate of said transmission data is lower than a predetermined rate, said vacant portion having no data to be transmitted;

performing a primary modulation of said frame to produce a primary modulation signal;

performing a secondary modulation of said primary modulation signal using a spreading code, to produce a secondary modulated wideband signal, said spreading code being different for each of said channels;

transmitting said wideband signal using a carrier,

wherein said step of generating a frame comprises the step of time-compressing said transmission data by a factor of N at every time period T where N is an integer greater than one, and T is the length of a frame at said predetermined transmission rate when the transmission rate of said transmission data is 1/N of said predetermined transmission rate, thereby providing said frame with said vacant portion.

2. The CDMA communications method as claimed in claim **1**, further comprising the steps of:

obtaining said primary modulation signal by receiving a wideband signal associated with one of said channels, and by despreading said wideband signal using a spreading code; and

restoring said transmission data by primarily demodulating said primary modulation signal obtained at the step of obtaining, and by time-expanding the demodulation output by a factor of the N.

3. The CDMA communications method as claimed in claim **2**, further comprising the steps of:

measuring received power of a common control channel signal transmitted from a base station other than a base station with which the mobile station is communicating, by switching said spreading code during a time period corresponding to said vacant portion in said frame; and

deciding during communications a base station to which the communication is to be switched in accordance with said received power.

4. The CDMA communications method as claimed in claim **2**, further comprising the steps of:

receiving common control channel data transmitted from at least one of said base stations during a time period corresponding to said vacant portion of said frame by switching said spreading code; and

demodulating said common control channel data.

5. The CDMA (Code Division Multiple Access) communications method as claimed in claim **3**, wherein said step of